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Redrawing Democracy: Quantifying House District Continuity and Change, 1789–2024

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Research Article

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Abstract

How have U.S. House districts changed since the Founding? When do mapmakers reshape districts—and when do they choose to preserve them? This article introduces the concept of "spatial protectionism"—the strategic minimization of district change—and develops four original measures to analyze redistricting changes from 1789 onward. I demonstrate how the strategic imperatives, racial context, and technical capabilities of mapmakers shape the magnitude and form of district change across five redistricting eras: Spatial Representation, Shifting Apportionment, Relative Stasis, Racial Redistricting, and Precision Engineering. My analysis reveals persistent low change disrupted by shifts to at-large districts; unprecedented boundary changes in the last decade; and clear associations between racial demographics, party control, and patterns of continuity and change. These findings establish the first empirical standard for judging the magnitude of district change and underscore the dual significance of stasis and dynamism in the politics of redistricting.

Representative democracy imposes static categories upon fluctuating populations by aggregating interests within geographically defined constituencies. Every redistricting cycle offers the opportunity to reshape political power, yet many districts remain tethered to spatial patterns from past cycles while others undergo dramatic transformation. Despite the profound influence of redistricting on who gets to exercise political power, remarkably little is known about how districts have changed over time—or remained static. Courts and policymakers, wary of disruption, often favor "low-change" approaches to redistricting, yet low-change maps have been criticized in court as "a standardless morass."[1] I address this gap by systematically measuring the spatial changes to every U.S. House district since the Founding. The results reveal stark variations in the magnitude of redistricting change between states and cycles, with profound consequences for voting rights, racial discrimination, and the partisan balance of power.

Gerrymandering of district boundaries is a persistent feature of American politics, often radically reconfiguring maps.[2] Humans are naturally attuned to dramatic change.[3] But this focus on high-change cycles can obscure the quieter but equally consequential strategies politicians use to entrench power—namely, by *minimizing* redistricting change. The deliberate, strategic minimization of redistricting change—which I call *spatial protectionism*—is a form of gerrymandering often employed to entrench power with less effort, lower visibility, and plausible deniability in court.

Individuals and organizations committed to minimizing change—the forces of spatial protectionism—claim legitimacy by appealing to traditional districting principles of contiguity, compactness, respect for local boundaries, and the preservation of communities of interest—values enshrined in many state constitutions.[4] For courts wary of judicial overreach, minimal-change approaches seem both cautious and neutral. Yet the pressure to ensure that new maps look just like old maps can preserve partisan and racial biases for decades.[5]

[1]Richard Briffault et al., "Non-Party Amicus Curiae Brief of Legal Scholars in Support of No Party" (Supreme Court of Wisconsin, 5 January 2022), Case 2021AP001450.

[2]Eric McGhee, "Partisan Gerrymandering and Political Science," *Annual Review of Political Science* 23, no. 1 (2020): 171–85, https://doi.org/10.1146/annurev-polisci-060118-045351; Alex Keena et al., *Gerrymandering the States: Partisanship, Race, and the Transformation of American Federalism* (Cambridge and New York: Cambridge University Press, 2021); Steve Bickerstaff and C. Robert Heath, *Gerrymandering Texas* (Texas: Texas Tech University Press, 2020).

[3]Richard F. Thompson and William A. Spencer, "Habituation: A Model Phenomenon for the Study of Neuronal Substrates of Behavior," *Psychological Review* 73, no. 1 (1966): 16–43, https://doi.org/10.1037/h0022681; Philip M. Groves and Richard F. Thompson, "Habituation: A Dual-Process Theory," *Psychological Review* 77, no. 5 (1970): 419–50, https://doi.org/10.1037/h0029810; Siu Kit Yeung, Tijen Yay, and Gilad Feldman, "Action and Inaction in Moral Judgments and Decisions: Meta-Analysis of Omission Bias Omission-Commission Asymmetries," *Personality and Social Psychology Bulletin* 48, no. 10 (1 October 2022): 1499–1515, https://doi.org/10.1177/01461672211042315.

[4]Hisam Sabouni and Cameron Shelton, "State Legislative Redistricting: The Effectiveness of Traditional Districting Principles in the 2010 Wave," *Election Law Journal: Rules, Politics, and Policy* 20, no. 2 (June 2021): 198–214, https://doi.org/10.1089/elj.2019.0608.

[5]Keena et al., *Gerrymandering the States: Partisanship, Race, and the Transformation of American Federalism*.

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Throughout American history, spatial protectionism has served a variety of purposes: protecting incumbents, preserving small state privileges, maximizing the flow of resources to rural areas, maintaining partisan control of state delegations, and obstructing Black and Latino voters from full participation in the democratic process.

In this article, I introduce four original MAPS scores—measures of change to district Margin, Alignment, Position, and Size—to compare redistricting across all House districts that have ever existed. These scores reveal how the strategic imperatives, racial context, and technical capabilities of mapmakers in different eras have shaped the magnitude and form of district change. Mapmakers have variously manipulated district geographies to gain unfair advantage, locked in prior gerrymanders, or allowed outdated boundaries to persist despite shifting circumstances—producing characteristic patterns of continuity and change.

My analysis highlights key historical shifts. The switch to at-large districts during the 1930s disrupted a period of otherwise low change, while the past decade has seen historically high levels of boundary changes, driven by advanced computing power that allows for more precise manipulation of district lines. Partisanship patterns in the MAPS scores show that electoral winners have long benefited from spatial protectionism. For example, during the 1890s, Democratic seats changed more frequently as Republicans consolidated power, while the 1930s saw the opposite as Democrats rose to a durable position of dominance. Racial dynamics also play a critical role. Except during the 1990s push for majority-minority districts, states with larger Black populations have tended to minimize district change, stifling the political influence of communities of color. By comparing MAPS measures across U.S. history, we can now calibrate the extent of spatial district change and better understand how redistricting practices have evolved both between and within states.

The first part of this paper introduces the concept of spatial protectionism and shows how racial and partisan imperatives can motivate mapmakers to minimize redistricting change. In Part 2, I show how the MAPS measures are calculated. Part 3 compares district change across all congressional seats in five redistricting eras: Spatial Representation, Shifting Apportionment, Relative Stasis, Racial Redistricting, and Precision Engineering. In Part 4, I model the relationships between partisanship, racial demographics, and spatial continuity and change throughout American history. I find that spatially protectionist sequences are associated with both racial demographics and partisan control. The historical perspective demonstrates that *stasis* was—and continues to be—just as important as *dynamism* in the politics of redistricting.

1. The power of spatial protectionism

Alexander Bickel famously described an "orgy of inactivity": state legislatures' refusal to act affirmatively to rectify malapportionment during the first half of the twentieth century.[6] But low-change approaches to redistricting have a history that extends through both earlier and later eras, with each period marked by strategic decisions to maintain continuity or avoid action. Scholarship on post-1962 redistricting typically focuses on gerrymandering—the deliberate manipulation of district boundaries for electoral gain—but overlooks the surprisingly frequent strategic use of minimal-change approaches, even in the modern era when technology offers millions of computer simulations and precise, block-level engineering of district configurations.[7]

At its core, representative democracy—based on geographically defined districts—builds in some degree of spatial protectionism. As populations shift and change, district maps become increasingly malapportioned over time. But spatial protectionism goes beyond these temporary and unavoidable mid-cycle misalignments between the demographic and spatial characteristics of a district. Protectionism involves *deliberate* efforts by mapmakers to preserve district shapes across multiple cycles, often with strategic purposes in mind, and facing legal and political challenges from opponents who seek wholesale reconfiguration of district maps. Spatial protectionism—the deliberate minimization of spatial change—can be contrasted with *spatial activism*: that is, efforts to transform existing maps. Proponents of spatial protectionism may value its intrinsic benefits—such as preserving the identity of a distinctive historical and geographically rooted community—or its extrinsic advantages—such as excluding opponents from political power. In some cases, spatial protectionism is combined with spatial activism: in one cycle, mapmakers radically reshape districts to gain advantages, and in the next, they protect those gains by minimizing changes.[8] The deliberate minimization of spatial change should be understood as a form of gerrymandering hitherto neglected in scholarship.

Electoral winners who fear repudiation are often spatially protectionist, as minimizing redistricting change tends to protect incumbents. Even in the earliest years of the republic, when states were free to experiment and switch between single-member, multi-member, and at-large districts, the logic of spatial protectionism helped drive behaviors: incumbents in some states thwarted efforts to create new districts in newly settled areas.[9] Throughout the nineteenth century, states with slow population growth deliberately neglected redistricting, ensuring they retained their influence in congress. Minimal-change maps allowed partisans to sustain vote-to-seat disparities, sometimes locking in advantages created by prior gerrymandering cycles.[10]

The rapid urbanization of the Gilded Era further heightened rural representatives' incentives to embrace spatial protectionism. By preserving district shapes, they could preserve the flow of funds and political influence even as their populations declined.[11] Leaving aside small states such as Vermont or Rhode Island, which

[6] Alexander M. Bickel, "The Durability of Colegrove v. Green Symposium: Baker v. Carr," *Yale Law Journal* 72, no. 1 (1962–1963): 39–45.

[7] Bickerstaff and Heath, *Gerrymandering Texas*; Richard Barnes and Justin Solomon, "Gerrymandering and Compactness: Implementation Flexibility and Abuse," *Political Analysis* 29, no. 4 (October 2021): 448–66, https://doi.org/10.1017/pan.2020.36; Keena et al., *Gerrymandering the States: Partisanship, Race, and the Transformation of American Federalism*; Brent Tarter, *Gerrymanders: How Redistricting Has Protected Slavery, White Supremacy, and Partisan Minorities in Virginia* (University of Virginia Press, 2019).

[8] Robert Yablon, "Gerrylaundering," *New York University Law Review* 97 (2022): 985.

[9] James A. Gardner, "Representation without Party: Lessons from State Constitutional Attempts to Control Gerrymandering," *Rutgers Law Journal*, Eighteenth Annual Issue on State Constitutional Law: Foreword, 37, no. 4 (2005–2006): 881–970.

[10] Erik J. Engstrom, *Partisan Gerrymandering and the Construction of American Democracy*, Legislative Politics and Policy Making (Michigan: University of Michigan Press, 2013).

[11] E. E. Schattschneider, "Urbanization and Reapportionment," *The Yale Law Journal* 72, no. 1 (1962): 7–12, https://doi.org/10.2307/794536; Stephen Ansolabehere and James M. Snyder, *The End of Inequality: One Person, One Vote and the Transformation of American Politics*, Issues in American Democracy (New York, NY: W.W. Norton & Co., 2008); Charles W. Eagles, *Democracy Delayed: Congressional Reapportionment and Urban-Rural Conflict in the 1920s* (Athens, Georgia: University of Georgia Press, 2010).

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have only ever had a handful of districts (and thus fewer redistricting opportunities) several states retained their existing maps for long periods. For example, Georgia made noticeably few changes to its maps for a 75-year period between 1887 and 1962. Arkansas, Louisiana, Kansas, North Carolina, Maryland, and Iowa all made minimal changes for the first 60 years of the twentieth century, until the Warren Court's landmark decisions prompted a cascade of redistricting from the 88th Congress onward. These rapid shifts disrupted a period of otherwise low change.

Judges, guided by traditional districting principles and hesitant to intervene in redistricting disputes, further strengthened these protectionist forces.[12] When the Civil Rights struggle enfranchised communities of color, and advocates pushed for majority-minority districts, spatial protectionists in several southern states fought to preserve maps that minimized Black and Latino influence for multiple cycles.[13] Today, technology allows mapmakers to reconfigure maps with unprecedented precision, but minimal-change sequences, nonetheless, help safeguard incumbents, preserve partisan advantages, and protect white political power as the nation diversifies.

Unlike eye-catching gerrymanders, states that limit redistricting changes typically attract little interest or commentary from scholars, journalists, and the public. But ignoring minimal change maps is a mistake. Robert Yablon describes "the insidious nature of continuity strategies: They serve to advantage those in power, yet, since they appear more restrained than radical redesigns, they come with a veneer of legitimacy."[14] In previously gerrymandered states, continuity can perpetuate bias more subtly than further change. A distinctive pattern of district change—high in one cycle, low in the next—is associated with instances of *gerrylaundering*.[15] If a party successfully gerrymanders in one redistricting cycle, it may benefit from minimizing changes in subsequent cycles to preserve unfair electoral advantages. Incumbents can lock in partisan advantages from gerrymandering in previous cycles by preserving those district configurations.

Instead of engaging in dramatic redesigns that draw legal challenges, mapmakers take a seemingly "restrained and minimalist" approach that preserves the order established in a previous cycle. They freeze existing boundaries as much as possible ("locking") and place one incumbent in each district ("stocking"). In states such as Oklahoma, Republicans were so successful under the 2000-cycle maps that they used those district configurations as a benchmark in the next two cycles. Mapmakers in Maine, Minnesota, and New Hampshire also approved plans offering the "least disruption."[16] The success of Redmap, the Republican State Leadership Committee's $30 million multi-year plan to gain ground in Congress by capturing state legislatures then

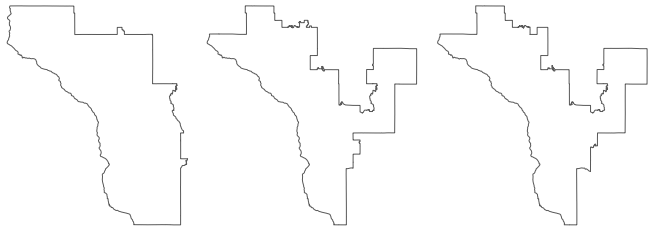


Figure 1. Partisan Gerrylaundering in Wisconsin's 3rd District: 2011, 2013, and 2023.

redistricting for partisan advantage[17]—"the great gerrymander of 2012"[18]—made it politically advantageous in many states for Republicans to retain those boundaries as far as possible in the 2020 redistricting cycle.

In Wisconsin, Republican mapmakers gerrymandered in the secretive 2010 mapmaking cycle. Despite Barack Obama's 52.8–45.9 percent edge in the 2012 presidential election in the state, Republicans won five of the state's eight congressional seats and gained a 60-39 seat advantage in the Wisconsin State Assembly on less than half of the total vote. By contrast, in the 2020 cycle, the maps remained similar to previous iterations. One of the most visually obvious instances of gerrylaundering is Wisconsin's 3rd (Figure 1), which became dramatically less compact between the 2000 cycle (left-hand side) and the 2010 cycle (center). In the process, the district became significantly less competitive.[19] Its 2020 cycle iteration (right-hand side) was an almost exact replica of the previous version, preserving the electoral benefits for another decade.

In the malapportionment case *Johnson v Wisconsin Elections Commission* (2021), the Supreme Court of Wisconsin endorsed the "least-change approach."[20] The dissent was scathing:

> adopting a least-change approach is an inherently political choice. Try as it might, the majority is fooling no one by proclaiming its decision is neutral and apolitical. The least-change approach is not the "neutral standard" the majority/lead opinion portrays it as. Rather, applying that approach to 2011's maps affirmatively perpetuates the partisan agenda of politicians no longer in power[21]

Wisconsin Republicans had every incentive to retain the 2010 cycle maps that brought them disproportionate success in translating votes into seats, but the gerrylaundering imperative is not confined to these recent cycles. Historically, legislators have found it expedient to gerrylaunder to preserve partisan advantages, protect incumbents, or prevent racial minorities from gaining political power.

After Black voters have been cracked and packed to minimize their influence, mapmakers have sometimes found it expedient to freeze those racially gerrymandered boundaries in subsequent

[12]Nathaniel Persily, "When Judges Carve Democracies: A Primer on Court-Drawn Redistricting Plans," *George Washington Law Review* 73 (2004): 1131.

[13]Frank R. Parker, "The Mississippi Congressional Redistricting Case: A Case Study in Minority Vote Dilution," *Howard Law Journal* 28 (1985): 397.

[14]Yablon, "Gerrylaundering."

[15]Yablon.

[16]Max Nesterak, "140 Years of Redistricting Failure • Minnesota Reformer," *Minnesota Reformer* (blog), 17 September 2021, https://minnesotareformer.com/podcasts/140-years-of-redistricting-failure/; Todd Bookman, "N.H. Supreme Court OKs New Congressional Map; Candidate Filing Period Opens Wednesday," *New Hampshire Public Radio*, 31 May 2022, sec. NH News, https://www.nhpr.org/nh-news/2022-05-31/nh-supreme-court-signs-off-on-congressional-redistricting-map; Yablon, "Gerrylaundering."

[17]The Redistricting Majority Project, "2012 REDMAP Summary Report" (Republican State Leadership Committee of the United States, 4 January 2013), https://www.redistrictingmajorityproject.com/?p=646.

[18]Sam Wang, "Opinion | The Great Gerrymander of 2012," *The New York Times*, 2 February 2013, sec. Opinion, https://www.nytimes.com/2013/02/03/opinion/sunday/the-great-gerrymander-of-2012.html.

[19]Nathan Denzin, "How Nationalized Politics Shape the Vote in Wisconsin's 3rd Congressional District," *PBS Wisconsin*, 11 August 2022, https://pbswisconsin.org/news-item/how-nationalized-politics-shape-the-vote-in-wisconisns-3rd-congressional-district/.

[20]Johnson v. Wisconsin Elections Commission, 972 N.W.2d 559 (Wisc. 2021).

[21]Rebecca Frank Dallet, (Dissent) Johnson v. Wisconsin Elections Commission, WI 87 (Supreme Court of Wisconsin 2021).

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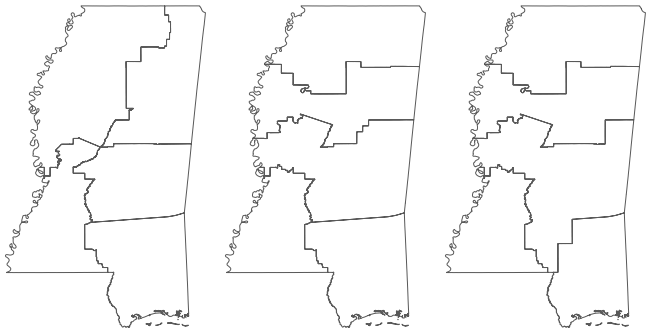


Figure 2. Racial Gerrylaundering in Mississippi, 1964, 1967, and 1980.

cycles. For instance, Mississippi's legislature engaged in racial gerrylaundering during the 1970 and 1980 redistricting cycles. In 1966, just as Blacks finally started to register and vote after decades of disenfranchisement, the Mississippi legislature redrew congressional district boundaries to dismantle the historic district containing the Delta region, cracking its Black population among five separate majority-white districts. This racist scheme to minimize Black political influence was then preserved using "least change" maps in the 1970 and 1980 redistricting cycles.[22] In other words, the racial gerrymander was perpetuated for decades by minimizing any further changes to congressional districts. Figure 2 shows the district configuration in the 88th Congress (1963–64), which sat immediately prior to the passage of the Civil Rights Act (left-hand side); the 90th Congress (center) showing the configuration after the legislature's racial gerrymander—note the east-west cracking of the northern region; and the 96th Congress (right-hand side), showing the same configuration in place in 1980.

Similarly, Virginia's District 3, drawn in 1990 cycle, was judged a racial gerrymander by a District Court, but the legislature passed maps containing the same unconstitutional district in both the 2000 and 2010 cycles.[23] After the district was again struck down in 2014, and the state ordered to remedy the violation by September 2015, the Virginia General Assembly convened but once more failed to act. Finally, the court tasked a special master with remedying the racially gerrylaundered map.[24]

Today, persistently low change across redistricting cycles draws legal challenges. For example, after the 2020 cycle, civil rights organizations sued Alabama, Louisiana, and Mississippi under the 1965 Voting Rights Act (VRA), alleging that these minimal-change states illegally diluted the votes of racial minorities by failing to create new majority-minority districts as the non-white population expanded. Louisiana's "least-change approach" produced a district described as a "carbon copy" of its previous iteration.[25] The Supreme Court ruled in *Allen v Milligan* 599 U.S. 1 (2023) that Alabama's low-change map contravened the VRA. Both Alabama and Louisiana were required to increase the number of majority-minority districts.

[22]Special to the New York Times, "Mississippi's Redistricting Plan Upsets Blacks," *The New York Times*, 3 September 1981, sec. A.

[23]Robert R. Merhige, Moon v. Meadows, 952 F. Supp. 1141 (United States District Court, E.D. Virginia, Richmond Division. 1997).

[24]Albert Diaz, Personhuballah v. Alcorn, 155 F. Supp. 3d 552 (United States District Court for the Eastern District of Virginia, Richmond Division 2016).

[25]Shelly D. Dick, Robinson v. Ardoin, M.D.La. (United States District Court for the Middle District of Louisiana 2022).

The Wisconsin Supreme Court endorsed the "least-change approach" while the *Milligan* Court repudiated it—yet no empirical standard existed for judging whether a map is "low" change or not. It is easy to identify individual instances of no-action but much harder to measure and calibrate "minimal-change" across multiple time periods and states. MAPS scores can help; they allow us to calibrate low and high change cycles by comparing levels of district continuity and change across the country—and throughout American history. Once we can accurately identify and compare low change sequences, we can examine the role played by race and party in spatial protectionism. Do spatially protectionist sequences indicate mere inaction and neglect, or do they correlate with racial demographics and partisan control in ways that suggest deliberate efforts to block redistricting change and achieve racial and partisan imperatives? The next section tackles this empirical challenge with four original measures of spatial change to compare all House Districts that have ever existed.

2. The MAPS measures

There are stark visual differences between redistricting maps in states that regularly transform districts, such as North Carolina, and states that tend to minimize changes from cycle to cycle, such as Alabama, but human perception is famously biased in its interpretations of different sorts of shapes.[26] We need precise measures to quantify the extent of district change. Previous efforts to quantify district change have covered specific portions of American history,[27] or limited groups of states,[28] and generally focus on compactness and gerrymandering rather than patterns of change more broadly.[29] Much more attention is paid to high-change districts than the "standardless morass" of minimal-change maps.[30] Here I examine the geography of change—and its absence—in all House districts from Founding to present day.

Four of the most intuitive forms of district change are *Margin* (boundary change), *Alignment* (overlap between old and new districts), *Position* (moving location), and *Size* (growth or shrinkage). I create four spatial measures of congressional district change—MAPS scores—for every consecutive pair of congresses stretching back to 1789 (see Appendix section A1 for sources, A2 for details

[26]Aaron R. Kaufman, Gary King, and Mayya Komisarchik, "How to Measure Legislative District Compactness If You Only Know It When You See It," *American Journal of Political Science* 65, no. 3 (July 2021): 533–50, https://doi.org/10.1111/ajps.12603.

[27]SoRelle Wyckoff Gaynor and James G. Gimpel, "Reapportioning the U.S. Congress: The Shifting Geography of Political Influence," *Political Geography* 86 (1 April 2021): 102365, https://doi.org/10.1016/j.polgeo.2021.102365; Jamie L. Carson, Erik J. Engstrom, and Jason M. Roberts, "Redistricting, Candidate Entry, and the Politics of Nineteenth-Century U.S. House Elections," *American Journal of Political Science* 50, no. 2 (2006): 283–93, https://doi.org/10.1111/j.1540-5907.2006.00184.x; Michael H. Crespin, "Using Geographic Information Systems to Measure District Change, 2000–2002," *Political Analysis* 13, no. 3 (July 2005): 253–60, https://doi.org/10.1093/pan/mpi016.

[28]Richard G. Niemi et al., "Measuring Compactness and the Role of a Compactness Standard in a Test for Partisan and Racial Gerrymandering," *The Journal of Politics*, 1 November 1990, https://doi.org/10.2307/2131686.

[29]Jonathan Krasno et al., "Can Gerrymanders Be Detected? An Examination of Wisconsin's State Assembly," *American Politics Research* 47, no. 5 (1 September 2019): 1162–1201, https://doi.org/10.1177/1532673X18767890; Stephen Ansolabehere and Maxwell Palmer, "A Two-Hundred Year Statistical History of the Gerrymander," *Ohio State Law Journal* 77 (2016): 741; Daniel C. Bowen, "Boundaries, Redistricting Criteria, and Representation in the U.S. House of Representatives," *American Politics Research* 42, no. 5 (1 September 2014): 856–95, https://doi.org/10.1177/1532673X13519127.

[30]Briffault et al., "Non-Party Amicus Curiae Brief of Legal Scholars in Support of No Party"; Yablon, "Gerrylaundering"; Amariah Becker and Dara Gold, "The Gameability of Redistricting Criteria," *Journal of Computational Social Science* 5, no. 2 (1 November 2022): 1735–77, https://doi.org/10.1007/s42001-022-00180-w.

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on method, and A5 for compactness comparison). My measures are based on where lines are drawn on each map and how they shift when new districts are drawn. I focus on spatial change because redistricting involves manipulating geographic boundaries. Unlike population-based measures, geographical changes are easily visualized, which is how citizens, legislators, and courts initially judge similarities and differences between redistricting plans.[31] Judges explicitly use an "eyeball test" for maps, and courts often rely upon geographical representations.

Each district at t_1 (the predecessor congress) overlaps with one or more districts at t_2 (the succeeding congress). Like the Ship of Theseus, measuring district change requires criteria for determining what counts as the "same" thing persisting in some form through time, as opposed to a "different" thing. A key challenge is identifying which of several contenders should be designated the spatial "successor" to a district that previously existed, because many states renumber districts wholesale during redistricting cycles. For each district, p, at t_1, I take the coordinates (latitude and longitude) of the geographic centroid (ϕ_1, λ_1) and measure the Haversine distance in meters between that point and the geographic centroids (ϕ_2, λ_2) of each of the districts in the set of all districts, $\{s\}$, at t_2, whose geometries overlap in any way with p. I consider p's successor district to be the district, s, which has at least some spatial overlap with p and the shortest distance between centroids.

I utilize centroids because merely measuring the extent of overlap between p and s risks designating very large districts as "successors" to tiny neighbors (for instance, Texas's El Paso 16th District would appear to have been "succeeded" by its gigantic neighboring 23rd District, if the distance between district centroids were not taken into account). The greatest challenge is designating appropriate spatial successors for smaller and elongated urban districts—such as the Michigan's Detroit-based 13th District, a majority-minority district protected by the VRA, which lost substantial population during the 1980s but was preserved and renumbered as the 15th District in the 1990 cycle, or Ohio's Cleveland-based 11th District, designated in the 2020 cycle as successor to the infamous "snake by the lake" 9th District, which was alleged to have fragmented Cleveland in a 2018 gerrymandering lawsuit. By focusing on spatial overlaps and distance, without constraining by naming conventions or population, my approach correctly identifies the most natural geographical successors, even when mapmakers create entirely new districts. For instance, Florida's southernmost 28th District—newly created in the 2020 cycle—is designated the true spatial successor to the state's 2010-cycle 26th District. See Appendix section A2.1 for details of how predecessor and successor districts were identified, with a visual guide.

Table 1 describes the four change measures and how they are calculated.

Margin: I calculate the length of the boundaries of each district, p, at t_1, and the boundary of each successor district, s, at t_2. I then identify the portions of the boundary of p that overlap with the boundary of s, as well as the portions of s that overlap with p. These overlapping portions are combined to calculate the total length of shared boundaries between p and s. The measure of margin change for each district, p, at t_1 is the total length of the overlapping boundaries as a proportion of the total boundary length of p and s. I reverse this measure so that low levels of overlap produce high boundary change scores, indicating greater boundary shifts. This means all MAPS measures run in the same direction: higher scores mean more change. Appendix section A2.2 contains more detail about how this measure is calculated.

Table 1. MAPS Measures of District Change

Type of change	Measure	How calculated
Margin	The length of overlapping boundaries between predecessor and successor district, as a percentage of the combined length of the predecessor and successor district boundaries (reversed).	$1 - \left(\frac{O_{sp}+O_{ps}}{B(p,t_1)+B(s,t_2)}\right)$
Alignment	Effective districts: weighted measure of the number of successor districts with which the predecessor district overlaps.	$\frac{1}{\sum_{i=1}^{n}\left(\frac{I(p,s)_i}{D(p,s)}\right)^2}$
Position	Distance between geographical centroids of predecessor and successor districts, in meters.	Haversine $(\phi_1, \phi_2, \lambda_1, \lambda_2)$
Size	The log of the ratio of the area of the successor district to the area of the original district, in absolute terms.	$\log\left\lvert\frac{A(s)}{A(p)}\right\rvert$

Notes: p is the original district; s the successor district; $D(p, s)$ is the combined area of the original district p and the successor district s; $I(p, s)$ is the intersections between p and s; $A(s)$ is the successor district area; $A(p)$ is the predecessor district area; ϕ_1, λ_1 are the coordinates of the internal point of p; ϕ_2, λ_2 are the coordinates of the internal point of s; O_{sp} is the overlap length of the successor district's boundary s within the predecessor districts' boundary p; O_{ps} is the overlap length of the predecessor district's boundary p within the successor districts' boundary s; $B(p, t_1)$ is the length of the predecessor boundary at t_1, and $B(s, t_2)$ is the length of the successor boundary at t_2.

Alignment: To measure the extent of overlap between districts at t_1 and t_2 I create a weighted measure termed "effective districts," after Laakso and Taagepera's parties measure.[32] Weights are necessary because simply counting the number of districts with which each original district overlaps would not meaningfully distinguish larger overlaps from minor adjustments. The effective district measure is higher when overlaps are more substantial (for instance, a district quartered evenly would score 4) and lower when the overlaps are tiny enclaves (a district with 95 percent overlap with one obvious successor district, plus negligible overlaps with three others, would score just over 1). Higher values on the effective districts measure indicate more change; smaller ones less (see Appendix section A2.3 for notes on calculation).

Position: The Haversine distance between centroids captures the extent to which each district has shifted location, measured in meters. Higher values in district distance indicate larger changes in location.

Size: I measure changes in district size by calculating the area of each district. The district has grown if the designated successor district, s, is larger than its predecessor, p; it has shrunk if the

[31] Kaufman, King, and Komisarchik, "How to Measure Legislative District Compactness If You Only Know It When You See It."

[32] Markku Laakso and Rein Taagepera, "'Effective' Number of Parties: A Measure with Application to West Europe," *Comparative Political Studies* 12, no. 1 (1 April 1979): 3–27, https://doi.org/10.1177/001041407901200101.

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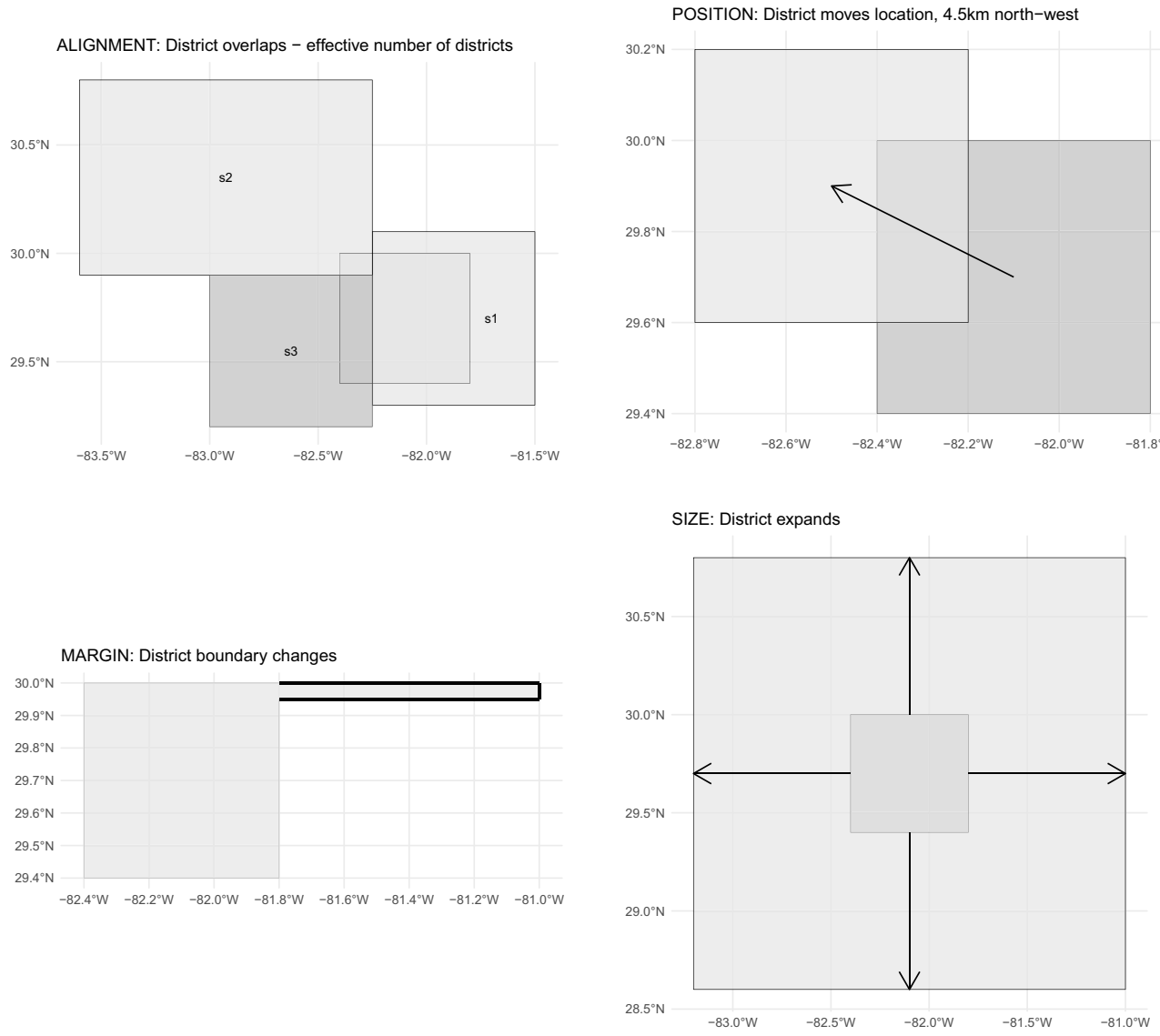


Figure 3. Schematic Representation of Four Change Measures.

reverse is true. I take the log of the ratio of s to p, for consistent treatment of growth and shrinkage. Here the main variable of interest is absolute size change: whether a district has grown or shrunk, the most important thing is how much it differs from 0 (no change). In Appendix section A2.4, I provide additional details on the size measure.

The four measures of district change are only moderately correlated with each other (see Appendix section A3) because these are distinct forms of change. In their simulations of least-change maps using different metrics, Becker and Gold similarly find that the same plan can score as having changed a lot or a little.[33] *Size* and *Position* are analytically separable and vary independently. A district can shrink or grow, or neither, and either stay put or move location. If district boundaries move (*Margin*), its effective districts (*Alignment*) score will too, but boundaries could change radically without intersecting many more districts. If a small tongue of district intersects multiple others, that district may yet have a boundary that is substantially similar to its predecessor. See Appendix section A4 for a comparison of the four MAPS measures.

Figure 3 represents differences between the four measures of change schematically, using a simplified square district approximating the shape and location of Florida's 3rd at around 29.5–30°N and −82.4 to −81.8°W. The simulated district is medium-to-large at 13,975 km^2. Its internal point lies at 29.7°N, −82.1°W. In the first panel, the district extends a finger east. About 41.25 percent of the new perimeter was not part of the original district—but district size has not changed substantially: it grew by 13 km^2, a relatively modest 9.27 percent increase.

In the second panel, the district is partitioned into three possible successor districts: s_1, s_2, and s_3. s_1 is the obvious successor district, covering around three-quarters of the original district. The effective districts measure of area change is 1.65, so there are effectively around one and a half true successors. In the third panel, the district moves in a north-westerly direction; its internal point moves 4.46 km and it shares virtually none of the predecessor district's boundaries, but the district stays the same size. In the fourth panel,

[33] Becker and Gold, "The Gameability of Redistricting Criteria."

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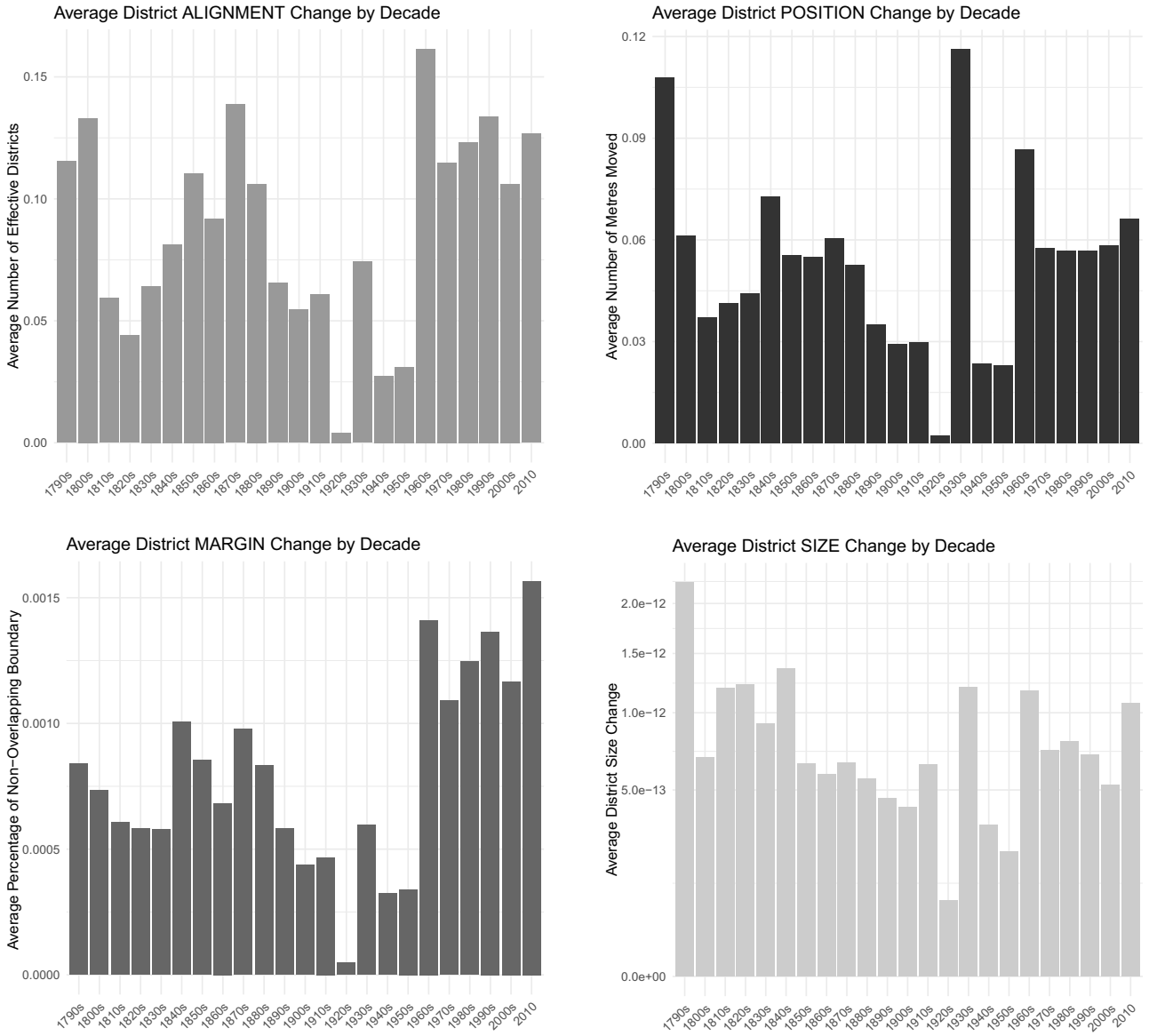


Figure 4. District Change by Decade.

the district expands to 13.4 times its original size and shares none of the original boundary, but location is unchanged as it retains the same geographical centroid.

3. Temporal dynamics of redistricting

What do MAPS scores reveal about patterns of redistricting continuity and change? Figure 4 displays the average level of district change of the four types by decade.[34] Each change measure has its own temporal dynamic corresponding to the strategic imperatives and technical capabilities of mapmakers in different eras. Alterations to district *Margin* (boundary changes) have increased over time, with peaks from the 1960s and 1970s, but particularly in the 1990s and 2010s, corresponding to expanding computing power in the latter half of the twentieth century and growing redistricting capacities. Mapmakers can now simulate and reconfigure district boundaries to an extent unparalleled in history. District *Alignment* change reflects the turmoil of the Founding (1800s), Reconstruction (1870s), court decisions on one-man-one-vote (1960s) and the decade of Republican REDMAP efforts to redistrict for partisan advantage (2010s).

Movement of district *Position* identifies the 1790s and 1930s, and to a lesser extent the 1960s and 2010s, as periods of substantial change. Outlier values highlight the switch between at-large and single member districts in the 1790s and 1930s (Figure 4). Growth or shrinkage to district *Size* is more evenly distributed across history, but switching between single-member and at-large districts also impacts scores. The 1920s stand out in all measures as a period of ultra-low change, the decade during which Congress itself failed entirely to reapportion the House. Prohibitionist, nativist, and rural interests fearful of losing influence obstructed efforts to reapportion following the 1920 census, as the cities grew.

[34]Only complete decades are displayed. The decadal sequence ends with the 117th Congress, the last congress to sit using districts drawn in the 2010 cycle. At the time of writing only one congress had sat during the 2020 cycle districts (118th).

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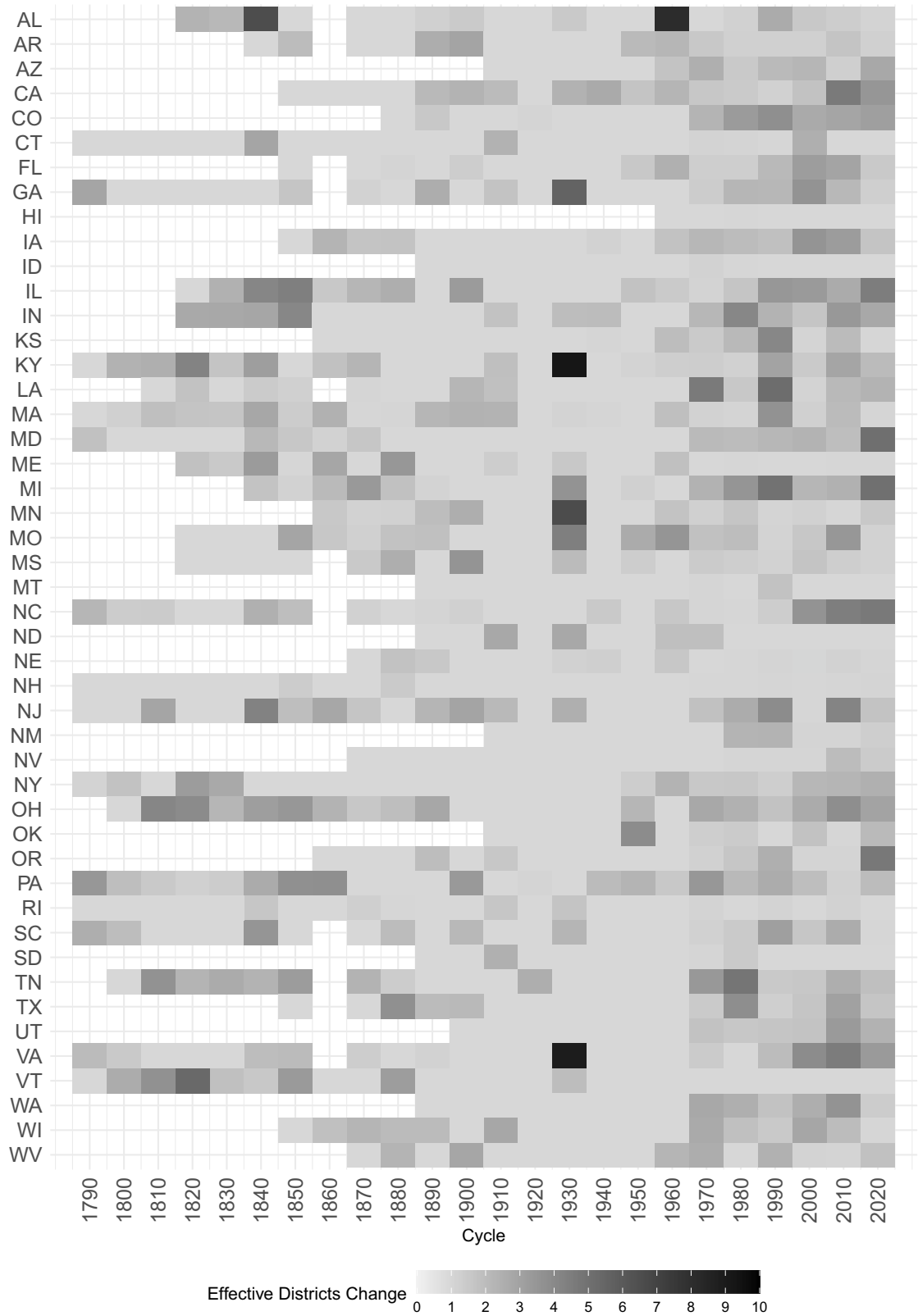


Figure 5. Number of Effective Districts by State and Cycle, 1789–2024.

Before decennial redistricting was institutionalized in the second half of the twentieth century, states redistricted, or failed to redistrict, on various different schedules. Figure 5 displays changes in the number of effective districts for each state in each redistricting cycle (predecessor congresses ending in "2" or "7"; successors ending in "3" or "8"). The darker the segment, the greater

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the magnitude of district alignment change between the congress which sat immediately prior to the redistricting cycle, and the congress which sat immediately after that cycle. Missing values indicate states that seceded from or had yet to enter the Union. States that only ever had a single at-large district are not shown.

The darker shades on the right-hand side of Figure 5 indicate an acceleration of spatial activism in many states from the 92nd Congress onward (the 1970 cycle), when redistricting was regularized at decennial intervals. My alignment measure pinpoints both mid-cycle and within-cycle changes—for every pair of successive congresses since 1789—but Figure 5 shows the magnitude of alignment change only within-cycle for ease of interpretation. Redistricting activity occurred between as well as within cycles in states such as North Carolina, Pennsylvania, Texas, Georgia, and Florida. Darker shades in North Carolina's 2000, 2010, and 2020 cycles show high levels of within-cycle spatial change, but the state's midcycle efforts, which were struck down in 2016 and 2019 respectively, *also* involved substantial change according to my MAPS scores.

MAPS scores cannot alone establish that gerrymandering has taken place because they do not reveal motives or effects, but the combination of large party gains and high MAPS scores is a warning sign for active forms of spatial gerrymandering. Eight of the ten states with the highest average MAPS change scores in the most recent redistricting round (2020) became mired in partisan or racial gerrymandering litigation, including North Carolina, Michigan, Ohio, Illinois, and Oregon. The congressional map in Maryland, which had the highest overall MAPS scores in the 2020 cycle, was struck down as an illegal Democratic gerrymander.[35] States graded low in partisan fairness, such as North Carolina (Grade F: significant Republican advantage), Ohio (Grade D: significant Republican advantage), and Illinois (Grade F: significant Democratic advantage), had persistently elevated MAPS scores in all three of the most recent cycles (2000, 2010, and 2020).[36]

MAPS scores can also help identify possible *gerrylaunders*. For instance, Wisconsin, South Carolina, and Louisiana had a high-change 2010 cycle but were among the lowest MAPS scores in 2020. In these states, Republican mapmakers had little incentive to alter maps that helped them gain or retain House seats. In 2010, Republicans controlled thirteen of these states' collective twenty-one House seats; by 2024, they controlled seventeen. Republican mapmakers in Louisiana made substantial changes in the 2010 cycle but kept the state's districts largely intact in the 2020 cycle, overriding Democratic Governor John Bel Edwards's veto in the process.[37]

No less important, though less visually striking, are the states that minimized changes even within cycle. For instance, Connecticut's districts have remained substantially unchanged since the 2000 cycle because neither the legislature nor the backup commission has been able to agree maps on time for decades.[38]

[35]Zach Montellaro, "Maryland Court Strikes down Congressional Map as Illegal Democratic Gerrymander," POLITICO, 25 March 2022, https://www.politico.com/news/2022/03/25/maryland-court-congressional-map-illegal-democratic-gerrymander-00020518.

[36]Princeton Gerrymandering Project, "Redistricting Report Card," 2021, https://gerrymander.princeton.edu/redistricting-report-card.

[37]Associated Press, "Louisiana Lawmakers Override Edwards' Veto of Proposed Remap," *AP News*, 30 March 2022, https://apnews.com/article/voting-rights-legislature-john-bel-edwards-census-2020-baton-rouge-7e5760ee471febebd6dd2db60bad2822.

[38]Christine Stuart, "Redistricting Panel Misses Deadline, Political Bickering Ensues," *NBC Connecticut* (blog), 22 December 2021, https://www.nbcconnecticut.com/news/local/redistricting-panel-misses-deadline-political-bickering-ensues/2677698/.

The state's recent court-imposed plans have explicitly followed the principles of spatial protectionism, safeguarding the state's five Democratic incumbents. In states such as Alabama, Mississippi, and South Carolina, low levels of change recorded for recent cycles in Figure 5 protect districts held disproportionately by white Republican representatives, despite the fact that population growth has been driven by communities of color and the proportion of voters identifying as white, non-Hispanic is declining.

Prior to the 1970 cycle, the picture in Figure 5 is more complex and irregular. Congress failed to reapportion the House between 1911 and 1930, precipitating major changes during the 72nd Congress (1931–33) as states gained and lost several seats. Four states that lost seats stand out in the 1930 cycle in Figure 5 because they switched to at-large elections for a single congress then switched back. Missouri, which lost three seats, simply failed to redistrict in time; Kentucky and Virginia's plans were invalidated by courts due to population disparities; and legislators' attempted gerrymander in Minnesota was vetoed by the Governor. Figure 5 also shows Alabama's dissolution of its single-member districts for the 88th Congress (1963–65) in response to surging Black registration, a striking moment of spatial activism in the service of white supremacy. These dynamics reflect broader historical patterns, which can be grouped into five distinct redistricting eras.

4. Five eras of redistricting continuity and change

MAPS scores reveal five eras of redistricting with distinctive theories of representation and characteristic patterns of stability and change, shown in Table 2, which I term the Eras of Spatial Representation (1789–1841); Shifting Apportionment (1842–1895); Relative Stasis (1896–1961); Racial Redistricting (1962–1990); and Precision Engineering (1991 onward).

Era of Spatial Representation (1789–1841): The Constitution did not mandate specific forms of districting, so states were free to experiment with general-ticket, multi-member, and single-member districts during the Era of Spatial Representation. States with high MAPS scores in this era switched between at-large and mixed plural- and single-member districts. But the forces of spatial protectionism drew support from colonial inheritance and path dependency, small state imperatives, and incumbency bias. From the Founding to the 1840s, theories of spatial representation dominated, with apportionment based on territory and at-large elections in smaller states.[39] At a time when transportation was rudimentary and the cost of reaching and developing relationships with new constituents high, spatial protectionism made sense: preserving relatively compact maps helped maximize the benefits of propinquity. But there was more to it than that. The Founders and early officeholders during the Era of Spatial Representation drew upon a tradition of place-based representation dating back to Medieval and feudal ideas about obligations and taxation tied to land, and the necessity of preserving representation for specific, historical, and geographically rooted communities.[40]

[39]Rosemarie Zagarri, *The Politics of Size: Representation in the United States, 1776-1850* (Ithaca and London: Cornell University Press, 1987).

[40]Billy D. Walker, "The Local Property Tax for Public Schools: Some Historical Perspectives," *Journal of Education Finance* 9, no. 3 (1984): 265–88; Gardner, "Foreword"; Charles Angelucci, Simone Meraglia, and Nico Voigtländer, "How Merchant Towns Shaped Parliaments: From the Norman Conquest of England to the Great Reform Act," *American Economic Review* 112, no. 10 (October 2022): 3441–87, https://doi.org/10.1257/aer.20200885.

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Table 2. Five Eras of Redistricting Continuity and Change

Era	Characteristics	Dominant theories of representation
Era of Spatial Representation (1789–1841)	Mixed at-large, plural, and single-member districts.	Place-based
Era of Shifting Apportionment (1842–1895)	Single-member districts standard. Experimentation with apportionment methods. Volatile elections and variable redistricting.	Party-centered
Era of Relative Stasis (1896–1961)	Belated reapportionment and persistently low redistricting change. Transition to urban population and growing malapportionment.	Regional and states' rights
Era of Racial Redistricting (1962–1990)	Equalization of population. Enfranchisement and racist backlash. Majority-minority districts.	Minority
Era of Precision Engineering (1991 onward)	Computer-driven redistricting for partisan advantage. Growing racial diversity and divergent redistricting strategies.	Individualized

As settlers moved toward the interior, spatial protection became more urgent: some incumbents blocked the establishment of districts for newly settled areas, concerned that new representatives would dilute their influence.[41] These pressures to preserve and rigidify existing maps were strongest where incumbents feared that newly settled areas would not support the incumbents' policies, and the opportunities to block new districts were greatest in western states that had larger interior territories (and thus, openings for settlement). The freezing of geographical boundaries advantaged existing communities and incumbents over challengers and newly settled areas, some of which lacked representation entirely for years.

Era of Shifting Apportionment (1842–1895): The Apportionment Act of 1842 brought an end to the period of formal sanction for state experimentation with districting formulas. Apart from a temporary exception created in 1882 for states losing seats in apportionment, the law now mandated single member districts. Whigs, the more urban party, stood to benefit more from single member districts than general ticket systems, and their precarious electoral position in Congress encouraged them to push for the districting rule.[42] The at-large system had allowed small states and southern states to produce unified congressional delegations and durable voting blocs, advantaging these states over larger states' more fragmented delegations elected in single member districts. In the 1842 Act, Whigs and the large states achieved a decisive victory over Democrats and the smaller states. Yet by mandating district boundaries, they also set the stage for growing malapportionment as populations shifted and immigration expanded rapidly from the 1840s and 1850s.

In the Era of Shifting Apportionment, there was heightened competition and partisanship, volatile elections, variable redistricting, and experimentation with different congressional apportionment formulas. MAPS scores show irregular and uncoordinated redistricting. In this period, traditional theories of spatial representation began to give way to demographic representation that large states had always favored,[43] but many incumbents still supported spatial protectionism to protect their seat against opponents: they knew that the most experienced candidates were more likely to enter races taking place in districts that had been substantially reconfigured.[44]

Era of Relative Stasis (1896–1961): The longest and most widespread period of spatial continuity in American history occurred during the Era of Relative Stasis. From the 1890s until the 1960s, with white supremacist regimes in the South and growing malapportionment across the country, theories of regional representation sought to justify the failure to correct imbalances between rural and urban areas. Legislatures dominated by conservative, white, rural, and agricultural interests blocked redistricting change. Courts were reluctant to intervene. The stability of district boundaries during this period helped professionalize Congress as representatives ascended to powerful positions within the developing seniority system and were able to keep them. Increasingly powerful incumbents favored frozen district maps that increased electoral predictability and avoided incumbent-pairings within districts.

Spatial protectionism accelerated malapportionment. Population deviations between congressional districts started to grow more rapidly from the turn of the twentieth century, from 7–10 percent during the Era of Shifting Apportionment to 12–21 percent during the Era of Relative Stasis.[45] The losers were urban centers absorbing migrants from rural areas without commensurate increases in representation: "malapportionment was the winners' curse. Areas that succeeded economically suffered politically."[46]

While state legislatures neglected their duty to redistrict in a timely fashion, Congress itself contributed to spatial continuity of districts by failing entirely to reapportion the House between 1911 and 1930. The powerful farm bloc and rural interests that pressured state legislators to rigidify district boundaries combined with racist, nativist, and prohibitionist forces in opposition to any attempt to empower wet cities with larger non-white and foreign-born populations.[47] Partisan interests, too, played a role in Congress's neglect of its duty to reapportion, as Democrats feared that reapportionment would benefit Republicans in the Northeast. MAPS scores in this period are persistently low, except during the 1932 correction when the House was finally reapportioned. During that time, states with anemic growth such as Missouri retained representation their population no longer warranted, while booming states such as California lacked the additional representation their population growth demanded.

[41] Gardner, "Foreword."

[42] Robert E. Ross, "Recreating the House: The 1842 Apportionment Act and the Whig Party's Reconstruction of Representation," *Polity* 49, no. 3 (July 2017): 408–33, https://doi.org/10.1086/692123.

[43] Zagarri, *The Politics of Size: Representation in the United States, 1776-1850*.

[44] Carson, Engstrom, and Roberts, "Redistricting, Candidate Entry, and the Politics of Nineteenth-Century U.S. House Elections."

[45] Engstrom, *Partisan Gerrymandering and the Construction of American Democracy*.

[46] Ansolabehere and Snyder, *The End of Inequality: One Person, One Vote and the Transformation of American Politics*.

[47] Eagles, *Democracy Delayed: Congressional Reapportionment and Urban-Rural Conflict in the 1920s*.

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Era of Racial Redistricting (1962–1990): The Supreme Court eradicated House district malapportionment within states with astonishing speed during the 1960s. Over three decades, the courts sought to protect and enhance the voice of voters of color with the expectation that if a majority-minority district could be built, it should be.[48] The reapportionment revolution fundamentally altered the relationships between voters and elites as racial justice considerations eclipsed traditional redistricting criteria of compactness, contiguity, and respect for political subdivisions.[49]

Even during this period of rapid change, however, spatial protectionists could draw upon some sources of rigidity to stymie racial progress. Pressure from incumbents and dominant parties helped maintain some minimal-change districts at local, state, and federal level. States such as Mississippi engaged in racial gerrylaundering: preserving district maps for multiple cycles that had previously been gerrymandered to minimize Black influence. Other states, such as Texas, refused to create new majority-minority districts as the Latino population expanded.[50] Blocking efforts to annex Black and Latino areas, the city of Pleasant Grove in Alabama sought to stave off influxes of communities of color. By rigidifying district boundaries and blocking efforts to annex minority areas or create minority districts, mapmakers produced racial malapportionment even as *population* malapportionment dropped to almost zero. MAPS scores from the 1960s to the 1990s show rapid change and regularization, as post-census redistricting became institutionalized at decadal intervals.

Era of Precision Engineering (1991 onward): Mapmakers prioritized majority-minority districts during the Era of Racial Redistricting, leading in some cases to radical changes to district maps. But the push-back against racial redistricting had already begun, as advocates of color-blind redistricting achieved victory in the 1996 Supreme Court decision *Bush v Vera* 517 U.S. 952, shifting race-conscious redistricting advocates onto the back foot. The decades-long push by conservatives to end race-conscious redistricting constrained mapmakers' ability to redistrict for racial justice by utilizing racial categories explicitly in the redistricting process. The forces of spatial protectionism suffered an unexpected defeat in 2023 when the Supreme Court found in favor of civil rights organizations advocating for spatial activism in the service of racial justice, in their fight against Alabama and Louisiana's failure to increase the number of majority-minority districts.[51] But opponents of race-conscious redistricting quickly struck back, arguing that deliberately crafting "bizarrely shaped" districts involved racial gerrymandering in violation of the Equal Protection Clause.[52]

In the Era of Precision Engineering, technology has transformed redistricting by enabling mapmakers to redraw districts with increasing precision, drawing upon more data and expertise than ever before. Finely balanced federal partisan majorities and increasingly virulent partisan polarization are powerful incentives to gerrymander for electoral advantage. A growing non-white population foregrounds new theories of diversity, individualism, and intersectionality even as the Supreme Court has dismantled the VRA preclearance provision. MAPS scores show diverging strategies among states, with some engaging in spatial activism for partisan gain while others pursue spatial protectionism. Despite advanced capacity to redraw maps, some states in the Era of Precision Engineering persistently limit changes to district boundaries from cycle to cycle in order to safeguard incumbents, boost partisan advantages, and protect white power.

Each redistricting era reveals distinct ways that spatial protectionism has been deployed to achieve political and social goals. Whether as a means to entrench regional economic power, maintain white supremacy, or advance partisan advantage, the decision to minimize district change has often intersected with race and party in consequential ways. These intersections are not only historical but persist into the modern era. To explore these dynamics systematically, I turn to statistical modeling of MAPS scores, focusing on two key questions: (1) How does the racial composition of a state influence its likelihood of making spatial changes to districts? (2) To what extent is partisan control of a seat associated with the decision to preserve or change district boundaries? These analyses reveal how race and party continue to shape the forces of spatial protectionism, both as a constraint and as a tool for political advantage. Just like maps transformed by gerrymandering, the decision to *minimize* district change is indelibly linked to racial diversity, animus, and the pursuit of partisan goals.

5. Racial demographics and redistricting

The interplay between race, party, and spatial protectionism raises critical questions about the decision to minimize or embrace district change. To understand these dynamics, I examine how racial demographics and partisan control are associated with levels of district change across decades, using MAPS scores as a measure of spatial continuity and transformation. Specifically, I test whether states with larger Black populations have tended to be more spatially protectionist, and how this relationship has changed across the five eras of redistricting in Table 2. In the following section, I test whether partisan control of congressional seats influences whether district boundaries are preserved or altered, as parties seek to gain and entrench their advantage during—and sometimes also between—redistricting cycles.

Figure 6 displays the relationship between the percentage of Blacks in a state population and the level of district change, as measured by combined MAPS scores. Each point shows how the proportion of Blacks in a state predicts the extent of district boundary change in a specific decade, with confidence intervals indicating statistical significance. Effects close to zero indicate that state Black population did not systematically predict district change in that decade; effects significantly above zero indicate that states with more Black residents underwent *more* spatial redistricting change than states with fewer Black residents, while effects significantly below zero indicate that states with more Black residents underwent *less* spatial redistricting change than states with fewer Black residents. The results show that racial demographics have often coincided with distinctive patterns of spatial activism and protectionism.

[48]Bruce E. Cain, Karin MacDonald, and Michael McDonald, "From Equality to Fairness: The Path of Political Reform since Baker v. Carr" (Brookings Institution, 12 April 2004).

[49]Gerald R. Webster, "Congressional Redistricting and African-American Representation in the 1990s: An Example from Alabama," *Political Geography* 12, no. 6 (1 November 1993): 549–64, https://doi.org/10.1016/0962-6298(93)90004-Q.

[50]Per Curiam, Mayfield v. Texas, 206 F. Supp. 2d 820 (U.S. District Court for the Eastern District of Texas 2001); Frank R. Parker, "Racial Gerrymandering and Legislative Reapportionment," in *Minority Vote Dilution*, ed. Chandler Davidson (Washington DC: Howard University Press, 1989), 85–118.

[51]Evan Milligan et al., "Milligan v. Merrill Complaint" (In the United States District Court, Northern District of Alabama, Southern Division, 16 November 2021), Case 2:21-cv-01530-AMM.

[52]Phillip Callais et al., "Callais v. Landry: Violations of Civil Rights Protected by the Fourteenth and Fifteenth Amendments of the United States Constitution; 42 U.S.C. § 1983; Three-Judge Court Requested Under 28 U.S.C. § 2284" (United States District Court for the Western District of Louisiana - Monroe Division, 31 January 2024), Case 3:24-cv-00122.

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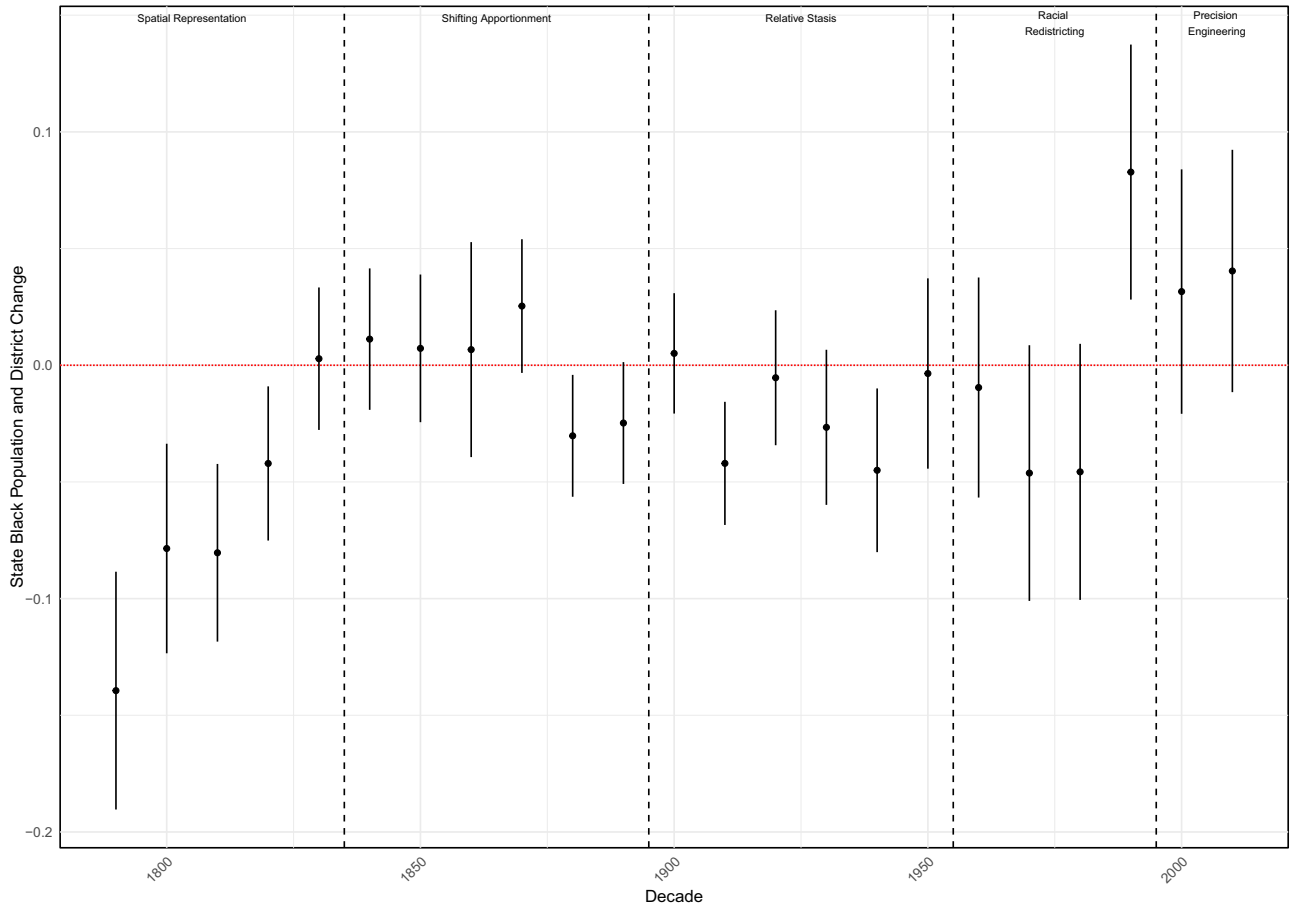


Figure 6. Race, Time, and District Change.

During the Era of Spatial Representation, states with more Blacks made fewer changes to districts. With the exception of the period prior to the Civil War, this pattern continued through the latter part of the Era of Shifting Apportionment and the Era of Relative Stasis. From Reconstruction through segregation, these states displayed relatively low change. The Deep South, with its traditionalistic political culture, racial conservatism, and one-party dominance, made minimal changes to its district maps until court intervention.

The VRA of 1965 became a double source of spatial protectionism: both protecting majority-minority districts *and* preventing jurisdictions covered under §5 from making any changes to existing election procedures without federal preclearance. Until its elimination by the Supreme Court in 2013, §5 prevented many racist efforts to undermine voting rights, but its "non-retrogression" principle also blocked some efforts to overturn existing discriminatory maps.[53] In other words, the law operated as an agent of spatial protectionism. Throughout its history, §2 has operated in spatially protective ways: prohibiting electoral changes that abridge the voting rights of racial minorities and preventing the dismantlement of majority-minority districts. Civil rights advocates debate whether this particular protection acts as a cage that prevents Black voters from achieving broader legislative influence.[54]

By the 1990s, more powerful and readily accessible computers combined with a new focus on racial redistricting, prompted by the "results" test of the 1982 VRA Amendments and the 1986 Supreme Court decision *Thornburg v Gingles*, 479 U.S. 30, on racial bloc voting. The effort to create many new majority-minority districts produced rapid change and extensive partitioning of counties in states with large non-white populations such as South Carolina, Florida, Georgia, Louisiana, North Carolina, and Virginia, producing a strikingly large result for the 1990s in Figure 6. The Alabama map overturned by *Milligan* included the majority-minority district created in 1992.

Republicans joined with Black Democrats in the "Fairness for the 90s" push for majority-minority districts, going into the 1990 cycle. They sought to cabin the Democratic vote, producing whiter, more conservative Republican seats in the areas "bleached" by the creation of majority-minority districts. Their efforts to shuffle voters across districts paid off. Congress gained sixteen new

[53]Potter Stewart, Beer v. United States, 425 U.S. 130 (United States Supreme Court 1976); Warren Snead, "The Supreme Court and the Allocation of Burden: Truncating the Voting Rights Act," *Law & Social Inquiry*, 2 January 2024, 1–31, https://doi.org/10.1017/lsi.2023.80.

[54]Charles Cameron, David Epstein, and Sharyn O'Halloran, "Do Majority-Minority Districts Maximize Substantive Black Representation in Congress?" *American Political Science Review* 90, no. 4 (December 1996): 794–812, https://doi.org/10.2307/2945843; Ebonya Washington, "Do Majority-Black Districts Limit Blacks' Representation? The Case of the 1990 Redistricting," *The Journal of Law and Economics* 55, no. 2 (May 2012): 251–74, https://doi.org/10.1086/661991; William D. Hicks et al., "Revisiting Majority-Minority Districts and Black Representation," *Political Research Quarterly* 71, no. 2 (1 June 2018): 408–23, https://doi.org/10.1177/1065912917738574.

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Black members in 1992, including the first Black congressperson from Alabama for over 115 years, but the 1994 elections also brought new conservatives to power and resulted in the Republican Party gaining a majority in the House for the first time since 1952.[55]

Figure 6 is a striking visual reminder of how the forces of spatial protectionism were broken in the 1990 cycle, a development with far-reaching consequences for partisan polarization and the challenges of modern governance. The surge in majority-minority districts contributed to the polarization of southern politics by boosting the number of liberal Black Democrats and conservative white Republicans and reducing the number of moderate Democrats.[56] Incumbent Democrats whose districts became whiter as a result of the 1992 redistricting exhibited more conservative voting behavior on House roll calls in 1993, while those who gained black constituents demonstrated more liberal voting behavior.[57]

[55]David Lublin, "Racial Redistricting and Southern Republican Congressional Gains in the 1990s," in *Voting Rights and Minority Representation: Redistricting, 1992-2002*, ed. David A. Bositis (Lanham, Boulder, New York, Toronto, London: University Press of America, Inc., 2006), 113–30; John R. Petrocik and Scott W. Desposato, "The Partisan Consequences of Majority-Minority Redistricting in the South, 1992 and 1994," *The Journal of Politics* 60, no. 3 (August 1998): 613–33, https://doi.org/10.2307/2647641.

[56]Lublin, "Racial Redistricting and Southern Republican Congressional Gains in the 1990s."

[57]L. Marvin Overby and Kenneth M. Cosgrove, "Unintended Consequences? Racial Redistricting and the Representation of Minority Interests," *The Journal of Politics* 58, no. 2 (May 1996): 540–50, https://doi.org/10.2307/2960239.

The partisan consequences of racial redistricting highlight the dual purposes of spatial protectionism and spatial activism: advancing racial inclusion while reshaping the partisan balance of power. The strategic creation of majority-minority districts not only enabled historic gains in Black representation but also contributed to the polarization of southern politics by simultaneously bolstering conservative Republican strength in adjacent, whiter districts. These dynamics underscore how spatial protectionism's effects extend beyond race, influencing the partisan composition of Congress and the nature of electoral competition. In the next section, I show how spatial protectionism has historically been deployed as a partisan strategy. I model how party control of congressional seats interacts with MAPS scores to reveal striking differences in the extent of district change across decades of Republican and Democratic dominance.

6. Partisanship and redistricting

The costs and benefits of spatial protectionism have not been evenly distributed across the parties over the course of American history. I model partisan differences in the relationship between party control of a seat and its level of MAPS change by decade in the era of Republican-Democratic competition (post-Civil War) (Figure 7). Each point represents a different decade, with confidence intervals indicating statistical significance. The *y*-axis indicates the estimated effect of party control on district boundary change. Points

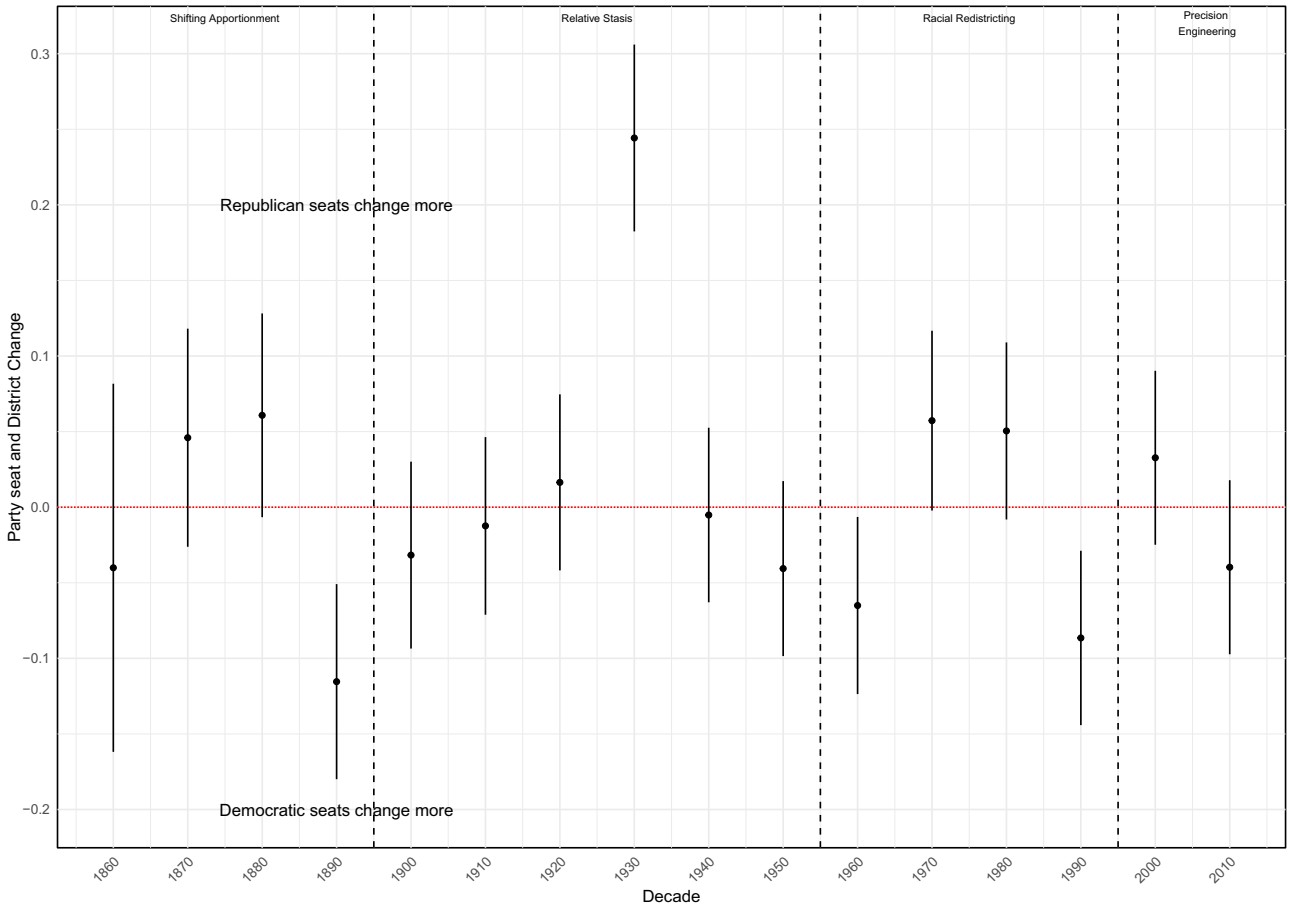


Figure 7. Party, Time, and District Change.

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significantly above zero indicate that Republican-held seats experienced more spatial change; points significantly below zero indicate that Democratic-held seats experienced more spatial change. During crucial decades of electoral change, statistically significant differences emerge between Republican and Democratic seats in the magnitude of district change. These decades are the 1890s, 1930s, 1960s, and 1990s.

Election wins bolster and incentivize spatial protectionism, and bursts of spatial activism often coincide with changes in party competition. Figure 7 shows Democratic seats changed significantly more than Republican seats during the turbulence of the 1890s, when the Third Party System gave way to the Fourth, ushering in a new period of Republican dominance as the Era of Shifting Apportionment came to a close. Forty years later, Republican seats changed significantly more than Democratic seats during the New Deal—in the middle of the Era of Relative Stasis—as long-overdue reapportionment prompted substantial district change just as Democratic support surged and courts invalidated Republican-led redistricting efforts. Between the 71st and 73rd congresses, Republicans were reduced from thirty-one seats to just three, collectively, across the four states that switched to at-large elections (Kentucky, Minnesota, Missouri, and Virginia), and Franklin Delano Roosevelt's landslide swept Democrats across the country to durable dominance. The result is an outlier value for the 1930s in Figure 7.

In the modern post-*Baker* era, partisan differences have again become evident. Democratic seats changed more in the 1960s and 1990s, at the dawn of the Eras of Racial Redistricting and Partisan Engineering, respectively. Despite the success of REDMAP, in the 2010s, there was no statistically significant difference in overall change between Republican and Democratic seats as states such as Alabama and Mississippi pursued spatial protectionism, while other red states—and some blue states—transformed district shapes. These divergent strategies are characteristic of an era in which mapmakers have the technology to anticipate court challenges and flexibly pursue both racial and partisan objectives in diverse ways.

7. Conclusion

District change *qua* change is neither good nor bad but becomes legally and politically significant when aligned with race and party dynamics. The introduction of MAPS scores allows us, for the first time, to compare spatial change directly and precisely across all districts that have ever existed. These scores reveal the shifting magnitude of district changes over time, demonstrating how different redistricting eras—from the Era of Spatial Representation to the Era of Precision Engineering—have produced distinct patterns of continuity and disruption. District *Margin* changes have become more substantial over the last 50 years, peaking in recent redistricting cycles. *Alignment* changes spiked during the Eras of Racial Redistricting and of Precision Engineering. *Position* changes peaked during the Eras of Spatial Representation and of Shifting Apportionment and disrupted the Era of Relative Stasis, and *Size* changes have been more evenly distributed across history, but the Era of Relative Stasis saw exceptionally low change.

Throughout history, the forces of spatial protectionism have acted as a counterweight to change, seeking to protect historical and geographically rooted community of interest; shield incumbent legislators from the dilutive influence of new settlers, migrants, or newly enfranchised communities of color; maximize the flow of federal funds and influence to areas with declining populations; or maintain representational advantages for political parties even as the electoral tide turned toward their opponents. Alongside active gerrymandering, spatial protectionism has been a tool of power, used by elites to sustain control in a political system built on veto points and inertia. In a system where change is difficult to achieve, blocking change can be just as powerful as initiating it.[58] As the veto-laden U.S. constitutional framework limits transformative political reforms, spatial protectionism has played an outsized role in shaping the evolution of American representative democracy, ensuring that political exclusion can be maintained even as the electorate shifts and diversifies.

MAPS scores shed light on extended periods of minimal district change during the early twentieth century, not just in the South but also across the Midwest and Northeast. The most litigated recent gerrymanders—in states such as Illinois, Ohio, and North Carolina—generate characteristic high MAPS scores. Tell-tale patterns of high-then-low change indicate gerrylaundering in states such as Wisconsin, South Carolina, and Louisiana. Persistently low-change states such as Alabama and Mississippi continue to be embroiled in legal battles over the VRA. As district change becomes correlated with racial demographics and concentrations of partisans—peaking with the push for majority-minority districts and partisan efforts to gain and retain narrow congressional majorities—the stakes in redistricting have never been higher. Advanced redistricting technology has split states into two paths: those that transform districts with precision for partisan gain, and those that embrace spatial protectionism to freeze boundaries in place. While recent court decisions, such as the shock 2023 defeat of spatial protectionism in Alabama, signal potential shifts, the long-standing institutional advantages of spatial protectionism remain formidable—and without sustained scrutiny, they will continue to shape electoral outcomes in ways that evade public attention.

Battles between spatial protectionism and activism in redistricting reflect broader debates over the preservation or transformation of institutions such as the Electoral College, the Senate, and the Supreme Court. Since the U.S. Constitution is one of the world's most rigid, its politics has frequently revolved around the degree of divergence between institutional frameworks and present needs and wants. At root, politics has always been a contest between those seeking to defend existing arrangements and those seeking to overturn or "repair" them, but that fight becomes more intense to the extent that it collides with polarized partisan and racial divides within the electorate.[59] At certain critical junctures, spatial protectionism has systematically benefited particular political parties and racial groups, shaping outcomes not just for individual elections but for the future of representative democracy.

In an era of increasingly sophisticated redistricting strategies, the "standardless morass" of change metrics demands urgent and sustained attention from political scientists. My intuitive, original spatial measures of district margin, alignment, position, and size enable us to quantify the degree of change with precision

[58] Lisa L. Miller, "Checks and Balances, Veto Exceptionalism, and Constitutional Folk Wisdom: Class and Race Power in American Politics," *Political Research Quarterly* 76, no. 4 (1 December 2023): 1604–18, https://doi.org/10.1177/10659129231166040.

[59] Rogers M. Smith and Desmond King, *America's New Racial Battle Lines: Protect versus Repair* (Chicago and London: Chicago University Press, 2024).

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over multiple cycles and states. This paper sets the agenda for the next phase of research on how strategic mapmakers can achieve and entrench partisan advantage—and the implications of such maneuvers for voting rights.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0898588X25000045.

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